I claim:

1. A method for decontaminating sludge, comprising the steps:

(a) providing an array of injector pipes that can be fluidically connected to a source of remedial water;

(b) inserting the array of injectors into the sludge; and

(c) moving remedial water that has been generated by electrochemical activation from the source of remedial water through the injectors into the sludge.

2. The method of claim 1, wherein the sludge is confined in a container that is closed to the environment by covering the top of the container with a plastic sheet or liner.

3. The method of claim 1, wherein the water is prepared by electrochemical activation within the injector pipes during injection of the water into the batch.

4. The method of claim 1, wherein the sludge is confined in a container and the electrochemically activated water is prepared at the container site by an electrochemical process that uses at least one sacrificial electrode and at least one other electrode that is not sacrificial, the other non-sacrificial electrode comprising a material selected from the group consisting of platinum and titanium oxide.

5. A container for decontaminating sludge material via injection and removal of remedial water prepared by electrochemical activation from material in the container, the container comprising:

(a) a box that holds the sludge material;

(b) a water impermeable liner and a geotextile water permeable liner lining the interior of the box;

(c) a removable two dimensional array of injector pipes that are vertically inserted into the box to inject the remedial water;

(d) a fixed array of drain pipes horizontally positioned at the bottom of the box;

wherein the horizontal drain pipes partially dewater the material and the injector pipes inject the material with remedial water prepared by electrochemical activation.

6. The closed container of claim 5, wherein the injector pipes have pointed tips to facilitate their penetration of the sludge material, and the injector pipes comprise a material selected from the group consisting of plastic pipes, plastic PVC pipes, iron pipes, stainless steel pipes, metal pipes, titanium pipes, copper pipes, and metal pipes coated on at least one surface with titanium dioxide.

7. The closed container of claim 6, wherein the injector pipes comprise at least one metal and the metal acts as an electrode to make electrochemically activated water during injection of remedial water into the sludge.

8. The closed container of claim 7, wherein at least one metal of the injector pipes is used as a sacrificial electrode in an electrical circuit to generate electrochemically activated water.

9. A method of reclaiming dredged material, comprising the steps:

(a) placing dredged material into a container, the container comprising a water impermeable liner and at least one drain;

(b) closing the container by covering the top of the material with a plastic or lid;

(c) dewatering the material;

(d) vertically inserting injector pipes into the dewatered material;

(e) injecting remedial water into the material via the injector pipes;

(f) closing the container by covering the top of the material with a plastic barrier; and

(g) dewatering the material.

10. The method of claim 9, wherein the water impermeable liner has an excess length at its top and the excess is used as the plastic barrier in steps (b) and (f) to cover the top of the material.

11. A method as described in any claim 9, wherein the container has a depth of between 3 feet and 20 feet, and the injector pipes extend at least two-third of the depth of the sludge in the container.

12. The method of claim 9, wherein the container is an ISO container and the liner is a non-woven geotextile bag of thickness between 20 and 120 wgt that is held from the sides of the container by regular protuberances on the side walls.

13 A method of solubilizing and removing an insoluble heavy metal from sludge, comprising:

(a) providing alkaline ECA water;

(b) contacting the sludge with the water from step (a); and

(c) removing a soluble form of the heavy metal from the sludge by dewatering.

14. The method of claim 13, wherein the sludge is electric arc furnace dust.

15. The method of claim 13 wherein the heavy metal is selected from the group consisting of cadmium, mercury and lead.

16. A method of converting ammonium lead chloride in a material to lead sulfate and lead chloride hydroxide, comprising;

(a) providing ECA water; and

(b) contacting the material with the water from step (a).

17. The method of claim 16, wherein the material is electric arc furnace dust.

18. A method for treating a batch of sludge, the method comprising the steps:

(a) placing the batch into a container having sides with round protrusions extending therefrom, a water impermeable liner and a water permeable liner respectively lining the walls with the water impermeable layer facing the walls, and wherein the round protrusions hold the water permeable liner off the walls;

(b) dewatering the batch by applying a vacuum between the water permeable and water impermeable liners;

(c) injecting a remedial water into the batch by pumping the water through pipes that are vertically inserted into the container and which extend at least two-thirds of the depth of the batch within the container; and

(e) dewatering the batch.

19. A method of dehydrating clay, comprising:

(a) providing electrochemically activated anodic water prepared from a salt solution having at least 10 mM concentration of a halide salt ; and

(b) contacting the water from step (a) with the clay.

20. An apparatus for generating electrochemically active water in pipes that are inserted into sludge for decontamination of that sludge, comprising:

(a) a power supply;

(b) at least one pipe comprising an electrode having a titanium oxide coating or other titanium chemical complex; and

(c) at least one pipe comprising an electrode having a non-titanium coated surface;

wherein each electrode is connected to the power supply, and each electrode forms its respective pipe surface or is attached to the pipe in a manner that generates electrochemically active water to the sludge during delivery of water through the pipes into the sludge.

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